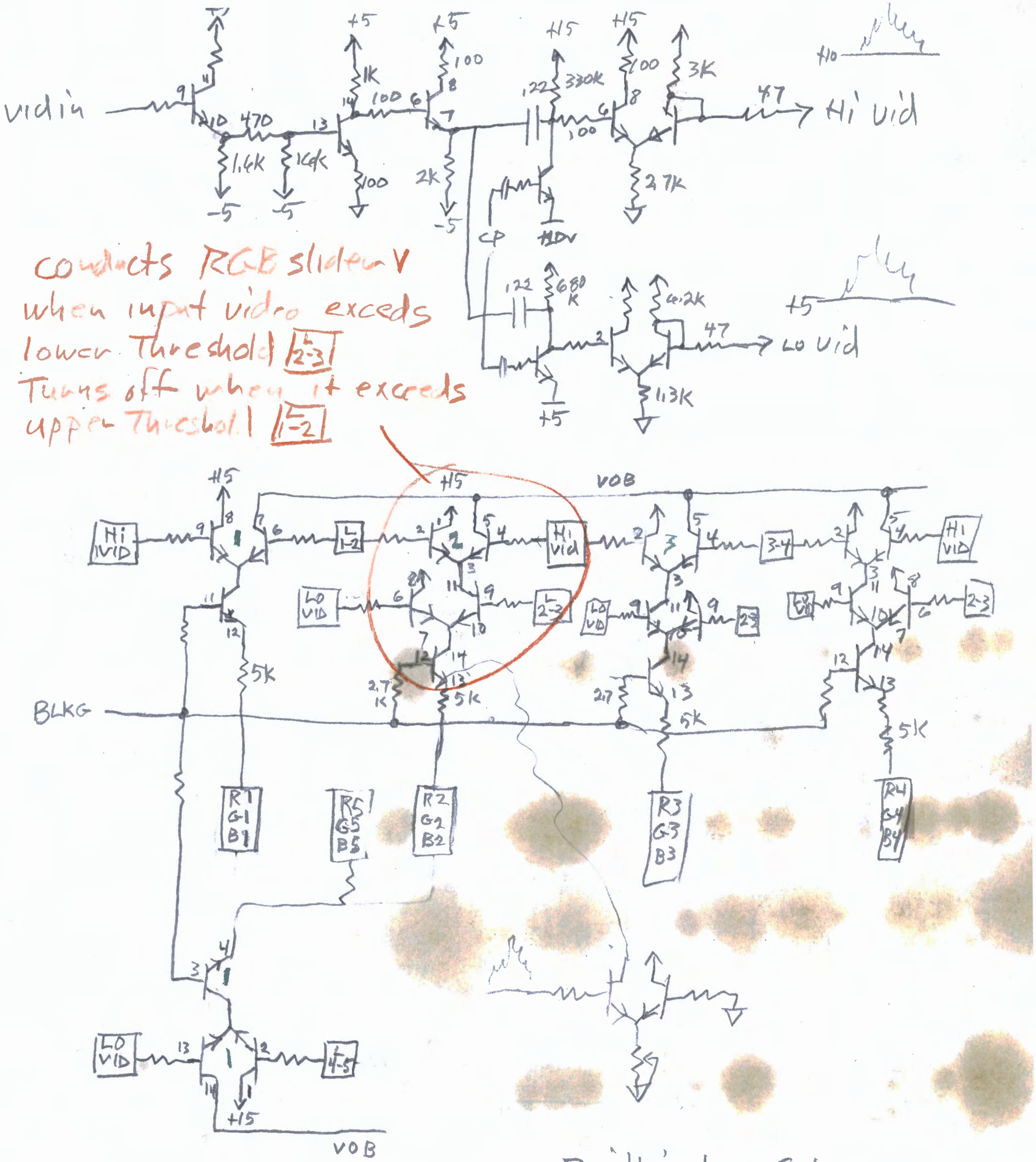
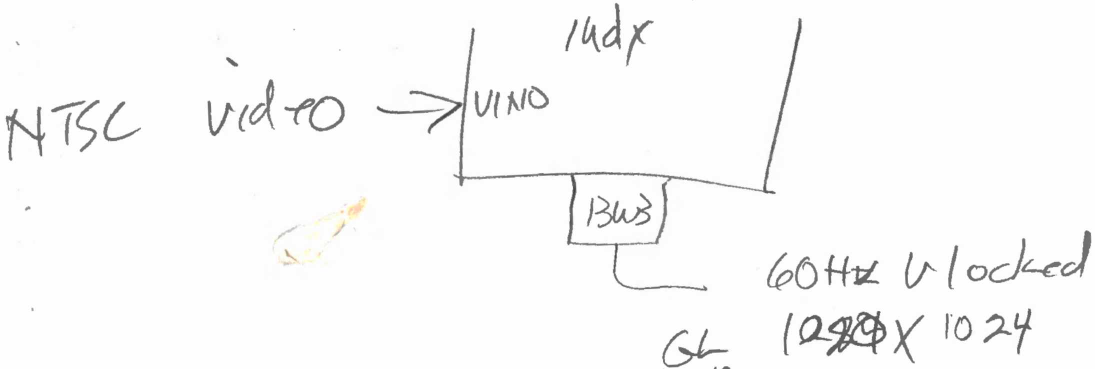


conducts RGB slider V
when input video exceds
lower Threshold L 2-3
Turns off when it exceeds
upper Threshold L 1-2

Brilliant Colorizer



GL VINO IN

```
setmon -g -Fv 60.
```

genlock

60Hz

noborder

lower left corner

```
imgview -n -geometry +0-0 #.rgb
```

~~xwsh~~

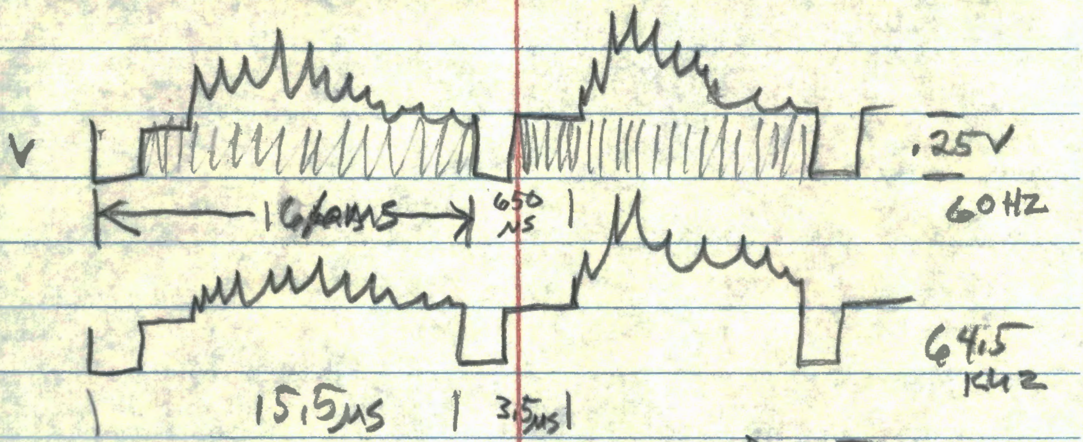
```
/usr/lib/desktop/desktopManager -mu
xwsh -fg #d6d6d6 -bg #00003f -bold
```

✓ /usr/Cadmin/bin/objectserver

✓ /usr/bin/X11/xdm

```
setmon -g -Fv 1024x768_60
```

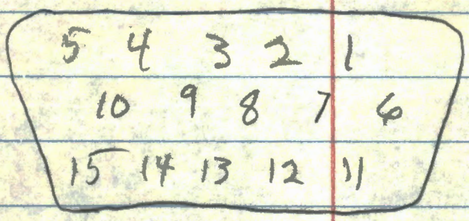
20us h lofsa V jitter



Sync On Green   4D35

.016 / .0000155   ~ 1,024 lines

Pins Away



1- [illegible] Blu
2- [illegible] Red
3- GR

13- H ⎍ TTL

Mating face of DVI female

PIN#	SIGNAL	PIN#	SIGNAL
1	T.M.D.S DATA 2-	16	HOT PLUG DETECT
2	T.M.D.S DATA 2+	17	T.M.D.S DATA 0-
3	T.M.D.S DATA 2/4 SHIELD	18	T.M.D.S DATA 0+
4	T.M.D.S DATA 4-	19	T.M.D.S DATA 0/5 SHIELD
5	T.M.D.S DATA 4+	20	T.M.D.S DATA 5-
6	DDC CLOCK	21	T.M.D.S DATA 5+
7	DDC DATA	22	T.M.D.S CLOCK SHIELD
8	ANALOG VERT. SYNC	23	T.M.D.S CLOCK+
9	T.M.D.S DATA 1-	24	T.M.D.S CLOCK-
10	T.M.D.S DATA 1+		
11	T.M.D.S DATA 1/3 SHIELD	C1	ANALOG RED
12	T.M.D.S DATA 3-	C2	ANALOG GREEN
13	T.M.D.S DATA 3+	C3	ANALOG BLUE
14	+5V POWER	C4	ANALOG HORZ SYNC
15	GND	C5	ANALOG GROUND

Mating face of MDR20 female

PIN#	SIGNAL	PIN#	SIGNA
1	TX1+	11	TX2+
2	TX1-	12	TX2-
3	SHLD1	13	SHLD2
4	SHLDC	14	SHLD0
5	TXC+	15	TX0+
6	TXC-	16	TX0-
7	GND	17	NC
8	+5V	18	HPD
9	NC	19	DDC_D
10	NC	20	DDC_C

Video Primer - The CRT | The How & Why of PC Monitors | **Monitor Pinouts**

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Fr
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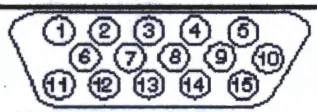
VPI Video Products Inc

monitor pinout, video pinout
digital flat panel port, EVC port

MONITOR PINOUTS

FOR PC, SUN, MAC, USB, DIGITAL FLAT PANEL AND EVC CONFIGURATIONS

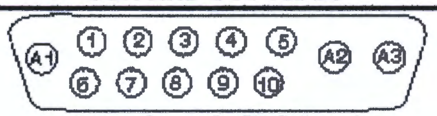
VGA VIDEO



Mating face of 15HD male

PIN#	SIGNAL	PIN#	SIGNAL
1	RED	9	NC
2	GREEN	10	GND
3	BLUE	11	ID0
4	ID2	12	ID1
5	GND TEST	13	HS
6	GND	14	VS
7	GND	15	ID3
8	GND		

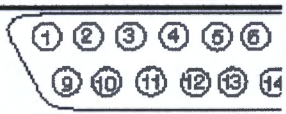
SUN AND SGI VIDEO



Mating face of 13W3 female

PIN#	SIGNAL	PIN#	SIGNAL
1	GND	8	ID1
2	VSYNC	9	ID0
3	ID2	10	GND
4	GND	A1	RED
5	CSYNC	A2	GREEN
6	HSYNC	A3	BLUE
7	GND		

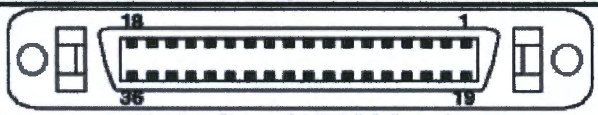
MAC VIDEO



Mating face of 15D r

PIN#	SIGNAL	PIN#
1	GND	9
2	RED	10
3	CSYNC	11
4	ID1	12
5	GREEN	13
6	GND	14
7	ID2	15
8	NC	

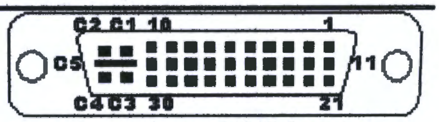
SGI Open LDI



Mating face of MDR36 female

PIN#	SIGNAL	PIN#	SIGNAL
1	Link2 **D0-**	19	Link2 **D3-**
2	Link2 **D0+**	20	Link2 **D3+**
3	Link2 **D1-**	21	Link2 **CLK-**
4	Link2 **D1+**	22	Link2 **CLK+**
5	Link2 **D2-**	23	DDD CLK SCL
6	Link2 **D2+**	24	VCC
7	NC	25	DDC DATA SDA
8	NC	26	GND
9	GND	27	NC
10	GND	28	GND
11	NC	29	NC
12	NC	30	NC
13	Link1 **D0-**	31	NC
14	Link1 **D0+**	32	GND
15	Link1 **D1-**	33	Link1 **CLK-**
16	Link1 **D1+**	34	Link1 **CLK+**
17	Link1 **D2-**	35	Link1 **D3-**
18	Link1 **D2+**	36	Link1 **D3+**

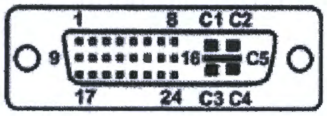
EVC



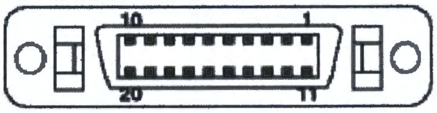
Mating face of EVC female

PIN#	SIGNAL	PIN#	SIGNAL
1	T.M.D.S DATA 2+	19	1394 VG
2	T.M.D.S DATA 2-	20	1394 VP
3	T.M.D.S DATA 2 RTN	21	T.M.D.S DA
4	SYNC RTN	22	T.M.D.S DA
5	HORIZ. SYNC TTL	23	T.M.D.S DA
6	VERT. SYNC TTL	24	STEREO SY
7	T.M.D.S CLOCK RTN	25	DDC RTN
8	CHARGING PWR INPUT+	26	DDC DATA
9	1394 PAIR A, DATA	27	DDC CLOC
10	1394 PAIR A, DATA+	28	+5 VDC
11	T.M.D.S DATA 1+	29	1394 PAIR
12	T.M.D.S DATA 1-	30	1394 PAIR
13	T.M.D.S. DATA 1 RTN	C1	RED VIDEO
14	T.M.D.S CLOCK+	C2	GRN VIDEO
15	T.M.D.S CLOCK-	C3	PX CLOCK
16	USB DATA+	C4	BLU VIDEO
17	USB DATA-	C5	COMMON G
18	1394 SHIELD/CHARGING POWER INPUT-		

DVI



DIGITAL FLAT PANEL (DFP) PORT



TU Delft ITS Webcam Setup

Powered by SiliconGraphics

Camera

We are using a Silicon Graphics Indy (100Mhz IP22, 64 Mb ram, IRIX 5.2) with an IndyCam digital color video camera. The Indy comes with an IndyCam out of the box, so if your Indy does not have one, ask you system administrator. If he refuses, make him believe it is the perfect way to keep an eye on what's going on in the room!

First, make sure the IndyCam is plugged in, and slide the lens cover to the side.

Next, log in on the Indy and start ***videopanel***. In the **Device(s): VINO Device Controls** box select ***IndyCam*** as default input, and make sure the settings of the IndyCam are reset to their defaults by selecting ***Restore Factory Settings (ctrl-f)*** from the ***File*** menu.

To see if the IndyCam actually works, you'll have to be logged in at the console of the Indy (ie, not remote), and start ***videoin***. You should see live images now! If not, make sure the IndyCam is plugged in correctly, the lens cover is not over the lens and the default VINO video input device is the IndyCam. If it still does not work, make sure **/dev/vid** and **/dev/video** are at least readable to you and run ***hinv*** to see if the IndyCam is detected:

```
...
Vino video: unit 0, revision 0, Indycam connected
...
```

When you find a problem here, it is probably a good thing to call in the system administrator and let him set the permissions right and/or reboot the Indy.

Camera Settings

You'll probably want to fine tune the IndyCam settings. On the **videopanel**, select ***IndyCam Signal Controls*** from the ***Pro*** menu. My settings here are:

```
AGC:            disabled
Shutterspeed:   1/60th Sec
Gain:           .875
Red balance:    .435
Blue balance:   .439
Saturation:     .447
```

The actual picture you'll get is not only monitor but also program dependent. **videoin** can not always be trusted to display the right brightness and colors, especially since the Indy has only 8-bit (256 color) video, and the gamma value of the X server defaults to 1.7 (which gives quite a bright picture on my non-SGI 21" monitor). Also, the RGB-to-Jpeg convertors I've tried seem to darken the image a little. Be sure to check the picture on other machines with true-color video after you've adjusted the settings! If you did a remote login, just assume the Silicon Graphics people did a reasonable job on the settings for now.

Brightness

Adjusting the brightness (and contrast) of the picture is probably easier with a greyscale image, so you might want to set the saturation to zero for now.

The higher the gain, the brighter the picture. AGC (Automatic Gain Control) automatically adjust the gain to get a picture with acceptable brightness. AGC does not work very well for 'dark' places, so it's probably best to not use it for indoor pictures. When the brightness can not be set correctly using only the gain, change the shutterspeed. The shorter the shutter time, the darker the images. For indoor use you'll probably want to use 1/60th of a second to 1/125th of a second. For overly bright pictures (outdoor use) you'll have to decrease the shutter time to get better contrast and colors. When changing the shutterspeed it is a good idea to temporarily enable the AGC to get a reasonable impression of the right setting. Make sure to manually set the gain to the optimal setting after changing the shutterspeed.

Color

First make sure the brightness and contrast of the picture are alright.
The green component of the image is fixed to follow the saturation (as are the red and blue components, but they can be adjusted seperately later). Adjust the saturation so the green component of the image is alright, then use the red and blue balance to set the overall color of the image to your liking. When you set a balance to zero, that color (red or blue) will vanish from the picture. When you set the saturation to zero, you'll get a greyscale image. If you set it to 1, you'll think you are on drugs.

Webcam

To get a working webcam, you'll need (besides the camera of course):

- A webcam program (or script).
- A web page which automatically updates the picture every minute.
- A reasonably fast and preferably fixed internet connection.

The internet connection is up to you, and depends among others on the number of hits per minute you get.

Webcam script

As the Indy is running IRIX (Unix), and comes with image software, the easiest way to get the webcam functionality is to write a script which performs the seperate tasks needed. Here is the **webcam** script I use (which should run on IRIX 5.3 or higher):

```
#!/bin/sh

# take picture
vidtomem -f /tmp/webcam -z 1/2 2> /dev/null

# convert to gif
#togif /tmp/webcam-00000.rgb /home/robbert/public_html/webcam.gif 2> /dev/null

# convert to jpg
imgcopy -f JFIF /tmp/webcam-00000.rgb /home/robbert/public_html/webcam.jpg 2> /dev/nul

# remove picture
rm -f /tmp/webcam-00000.rgb
```

vidtomem takes a picture (640x480), 'zooms' in by a factor 1/2 (320x240), and writes the image to file **/tmp/webcam-00000.rgb**. The number and the extension are added automatically, and if

the file already exists the number is increased untill an unused filename is found. The size of the file is about 775kB!
imgcopy converts the RGB-type image to a JFIF (jpeg) image in my **public_html/** directory. If the image format is not specified **imgcopy** tries to deduct it from the given extension. A list of other image formats is given by **imgformats**. **imgcopy** seems unable to write gif images, but you can use **togif** instead. The size of the jpeg files is about 10Kb (320x240), for gifs it is about 30Kb (same resolution). Make sure you point the output file to the right directory and filename. If the file exists, it will be overwritten!
rm is used to remove the RGB image file so **vidtomem** can use the same name in the next run (otherwise the script would fail ***and*** **/tmp** would be full in notime).
The **2> /dev/null** statements suppress any (unwanted) output.
Clean and simple!

Crontab entry

/etc/rc2.d /S99 webcam

Now that we have a script which takes one picture, how do we get it to take a picture every minute? If you're running unix, and have the right privileges, this is simple: we use the cron daemon. Using the following crontab file, cron will execute your **webcam** script every minute:

```
* * * * * webcam
```

Read this line from left to right as follows: at every minute (*) of every hour (*) of every day (*) of every month (*) and of every day of the week (*) execute **webcam**.
Save this line as **webcam.cron** and start the webcam with ***crontab webcam.cron***. To check your settings, use ***crontab -l*** and to stop the webcam, use ***crontab -r***. If you are already using the cron daemon, just add the line to your crontab file. If you do not suppress output from the script, it will be mailed to you by the cron deamon every time the script runs!
A picture is taken every minute to not put too much strain on the machine and the network (my directory is mounted by the Indy via NFS, and the webserver also mounts my directory via NFS). The extra load on the machine is not noticable now (when nobody is logged in, the load stays under 0.1).

Webcam page

Last but not least, you need a nice webpage to show the picture. You'll need some special HTML code to get the browsers to update the image every minute. The simplest way to do this is to include the following line into the HEAD section of your page:

```
<META http-equiv="refresh" content="60">
```

For some more advanced examples, see the following pages:

- Javascript Webcam page
- Java(script) Webcam and Chatbox page
- Javascript 24-hour Webcam Archive

You are free to use the (javascript) code on these pages, but I would appreciate an E-mail so I can admire the end result. The java(script) pages require a java(script) capable browser, however Microsoft's Internet Explorer 3.0 is **not** fully compatible!

If you've got any suggestions or questions (hardware, software or camera view), please let me know!

©1999 Robbert Eggermont
robbert@ce.et.tudelft.nl

GENLOCK(7)

NAME

genlock - genlock capability on IRIS-4D Series machines

DESCRIPTION

Genlock is the synchronizing of two video outputs, such that the horizontal and vertical sync signals are aligned. For genlock to be possible, the two video outputs must be running the same video format. All IRIS-4D Series graphics systems have some genlock capability.

A graphics pipe normally has on it a clock source, such as a crystal, that is used to generate internal timings. To genlock a graphics pipe, you must supply a suitable external clock; you must then inform the software that it is to use the supplied clock instead of its internal default.

Genlock is controlled by the *setmon(1G)* command and the *setmonitor(3G)* IrisGL function call. To enable or disable genlock, you must use one of these. For a full description of the various parameters available please consult those man pages.

When genlocking two IRIS-4D Series machines together, you should designate one system as the `master' and the other as the `slave'. The master system will run normally and use its internal crystal to generate its sync signal. The slave system will take the sync signal from the first system and use it; the call to *setmon(1G)* or *setmonitor(3G)* should only be done on the slave system. To route the sync signal would typically require a coaxial cable from the `Sync Output' jack of the master system to the `Genlock Input' jack of the slave system. Also, this signal should usually be terminated at the destination end with a 75-ohm resistor.

If more than two graphics systems are to be locked together, you must still designate one system as the `master'; all other systems are `slaves'. Care must be taken in this setup to correctly route the sync from the master to all of the slaves; this should normally be done in daisy-chain fashion. Note that this connection must be terminated only once, at the last slave in the chain.

NOTE

In some multi-screen stereo applications it is desirable to genlock stereo screens together. Care must be taken to ensure that right-eye views are locked together. For some older stereo formats, this may require several attemps; the system may lock the left eye of one screen to the right eye of the other. If this occurs, turn genlock off and try the genlock again.

Removing and reconnecting the sync signal from the sync input is not suggested, as this may cause problems with the hardware. Genlock should always be turned off via *setmon(1G)* or *setmonitor(3G)* before connecting or disconnecting the sync signal.

In a IRIS-4D system with multiple graphics pipelines, these pipelines are not automatically genlocked; they run completely independantly, exactly as if they were in different systems. If it is desired to run the graphics pipes genlocked together, this must be done by the user as described above.

In general, the input sync reference signal must be identical to the output sync signal for that format; in other words, you can generally only lock together identical video formats.

SEE ALSO

setmon(1G), setmonitor(3G)

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SETMON(1G)

NAME

setmon - set the current and default video output format

SYNOPSIS

/usr/gfx/setmon [options] format

DESCRIPTION

setmon changes the video output format to the one specified; it also specifies the default video format to be used at system power-up or graphics initialization. You must set the DISPLAY environment variable to the local machine (e.g. :0.0) so that any GL calls that *setmon* makes will occur on the local machine, and not over a network interface. If none of (-n, -x, -w) options are specified on the command line, then setmon will prompt for input to determine whether the format being loaded should also be saved into the eeprom. If the format is to be loaded into the eeprom, you must be root, or no operations will take place.

Command line options are:

-n Specifies that *format* should not be saved and used as the default, but should just be loaded temporarily. This is the opposite of the **-x** option.

-x The specified video format will take effect when the X server restarts (when one logs out from an X session) or during the next boot cycle. You must be the root user to use the -x option. This option is currently allowed on **RealityEngine**, **InfiniteReality**, **VPro (V6, V8)**, **IMPACT**, **CRM**, **XL**, and **GR2 (Elan, Extreme, XS or XZ)** graphics. (CRM graphics is found on O2 workstations).

On **RealityEngine** and **InfiniteReality** graphics, this saves the specified format in the appropriate eeprom in the graphics subsystem. On other graphics systems, the name of the format is stored in /var/X11/Xvc/<gfxname><pipe>_TimingTable, where <gfxname> is:

NG1 if the graphics type is **XL**,
GR2 if the graphics type is **GR2**,
Crm if the graphics type is **CRM**,
Impact if the graphics type is **IMPACT**.
Odyssey if the graphics type is **VPro**.

Except for **CRM**, <pipe> can be 0 or 1. (A "pipe" is synonomous with "graphics head" or graphics board".) On **CRM** graphics, <pipe> is always 0. Multipipe graphics is not supported on the O2 workstation.

For example, for the first graphics board on an **IMPACT** system, the name of the format is stored in /var/X11/Xvc/Impact0_TimingTable.

On graphics systems where the format name is not stored in eeprom, the format specified by "setmon -x" will take effect whenever graphics is initialized. To do so, use the following command sequence:

```
su
(/usr/gfx/stopgfx; /usr/gfx/startgfx) &
```

-w On systems which support **-x**, specifies that *format* is to be loaded now, and also that *format* will be used as the default when the X server restarts. (**-w** is like **-x**, but in addition, the specified video format is loaded into the hardware immediately.) You must be root to use the -w option.

-a*acctype*
Sets the type of accumulation support for the frame buffer. *acctype* specifies either software only support at 16 bits per component (**-a0**) or hardware accelerated support at 24 bits per component (**-a1**).

This option requires the -x option and is only supported on **VPro** graphics.

-d*fbdepthbytes*
Specifies the depth of the framebuffer. *fbdepthbytes* can be either 8 bytes per pixel (**-d8**) or 16 bytes per pixel (**-d16**).

This option requires the -x option and is only supported on **VPro** graphics.

-D*DACgainlevel*
Specifies the gain level for the DACs. *DACgainlevel* can be either the nominal default setting - RS343 (**-DRS343**) or VESA level (**-DVESA**).

This option is only supported on **OCTANE** systems with **IMPACT** graphics.

-g Enables genlock (external video clock).

This option is not supported on **CRM** graphics.

-t Specifies that genlock input operates at TTL levels rather than nominal video levels (only applicable when genlock is specified).

-T Specifies that sync output should be at TTL levels rather than nominal video levels. Currently only supported on **RealityEngine**; other systems default to TTL levels.

-G Specifies that genlock input is through the GREEN input rather than the SYNC input (only applicable when genlock is specified).

-s*syncselect*

Specifies the source of the sync signal. *syncselect* is any combination of **r**, **g**, **b**, and **a** to represent the sync signal on the same combination of the red, green, blue, and alpha video cables. If *syncselect* is **n**, the sync signal will be generated on the sync cable. If *syncselect* is not specified, the sync signal will default to the green cable.

-j*genlockdelay*

Specifies the number of pixels to adjust the display, relative to the genlock input signal. Currently, only supported on **GR2** graphics **(Elan, Extreme, XS or XZ)** for NTSC and PAL monitors. Positive values move display to the left, and negative values move display to the right. Must be used with the -g option.

-F*input_signal*

On systems with **GR2** graphics **(Elan, Extreme, XS or XZ)**, *input_signal* specifies whether the input signal used for framelocking is interlaced (**-Fi**) or non-interlaced (**-Fn**).

On **Indy XL** graphics systems, it specifies whether the input signal used for framelocking comes from Vino (**-Fv**) or Galileo (**-Fg**) video.

On **Indigo2 XL** systems, it specifies whether the input signal used for framelocking comes from the backplane (**-Fv**) or Galileo (**-Fg**) video.

On **Indigo2 or OCTANE** systems with **IMPACT** graphics, it specifies whether the input signal used for framelocking is an internal (**-Fi**) or external (**-Fe**) video signal.

-L*format*

On system with **Vpro** graphics, *format* specifies the name of the video format used for external framelocking.

-m*widthxheight*

Specifies the area that the X server should manage; this may be larger than the area displayed by *format*. If not specified, this defaults to the area required by *format*. This is currently supported only on **RealityEngine**.

-S For use only on machines with multiple channel options (**RealityEngine, Impact and Octane** systems). This flag specifies that the Channel Option should be enabled. You must specify a format which is appropriate for the option; the available formats are described in the documentation accompanying the hardware option. Conventional names for appropriate formats are prefaced by the number of outputs, ie 4@640x480_60 indicates that four channels, each 640 wide by 480 tall and refreshed 60 times a second, should be output. Please note that systems that can drive multiple channels can also typically drive single channels, and that the -S option indicates which category of timing formats the user is requesting.

-v Enable verbose mode. On systems supporting custom video output formats, statistics related to downloaded file size and compression are printed. For **Impact** and **Octane** configurations, requesting a format that cannot successfully be downloaded with the -v flag will return formats that can be downloaded.

-p*pipenumber*

Specifies the pipe for which the format is to be changed on systems with multiple graphics pipes. The pipenumber is a small integer, typically 0, 1, or 2. If the pipenumber is not specified with this command line option, the pipenumber is derived from the trailing digit of the DISPLAY environment variable. For example, the DISPLAY value :0.0 refers to pipe 0, :0.1 refers to pipe 1, and :0.2 refers to pipe 2. On systems with **IMPACT** graphics, this option must be used with the **-x** option when invoking *setmon* without the X server running.

-cframelock *master or slave*

Implemented on **Indigo2 XL-XL** dual-head, and **VPRO** graphics. On **Vpro** graphics, used to determine whether to send csync output through the Genlock port. If **-cm** is used, csync will be output on the Genlock connector for use in genlocking multiple systems. If **-cs** is used, the csync output will be shut off so that the **Genlock** port can be used as a genlock input. On **Indigo2 XL-XL** dual-head use **m** to set the master and use **s** to set the slave head if you want to change the default settings for framelocking through the backplane. By default, the bottom (pipe0) graphics board will be the master and the top (pipe1) board will be the slave. The master sends out a framelock sync signal to the backplane. The slave receives the framelock sync signal from the backplane. Make sure the pipe number refers to the appropriate board; set the pipe number as described in the discussion of the **-p** option above. Use **-Fv** to framelock the slave to the sync from the backplane. Use **-Fg** to framelock the master to the Galileo, assuming the video board will be attached to the master. Refer to the galileo man page for more details on framelocking to the video board.

format

specifies the desired video output format. *format* may be the name of a "standard" format such as **60** or **ntsc**. Note that case doesn't matter when specifying a standard format. If not one of the standard format names, *format* is interpreted as the filename (minus the '.vfo' extension) of a valid video format file. Generally, video format files reside in the directory /usr/gfx/ucode/<boardname>/vof.

Here is a complete list of the "standard" format names, not all of which are allowed on all graphics systems:

30hz	
30	(alias for 30hz)
50hz	
50	(alias for 50hz)
60hz	
60	(alias for 60hz)
ntsc	
hdtv	
vga	
pr60	
pal	
343	
str_rect	
stereo	(alias for str_rect)
st492	(alias for str_rect)
str_bot	
str_top	

sqr_rect	
squareo	(alias for sqr_rect)
sq492	(alias for sqr_rect)
sqr_bot	
sqr_top	
vof0	
vof1	
vof2	
vof3	
70hz	
70	(alias for 70hz)
72hz	
72	(alias for 72hz)
75hz	
75	(alias for 75hz)
76hz	
76	(alias for 76hz)
iris3k	
presenter	(alias for iris3k)
presenter1280	(alias for 60hz)

XS, XZ, Elan, and Extreme Graphics

support the standard names 30HZ, 50HZ, 60HZ, 72HZ, NTSC, PAL, IRIS3K, STR_RECT, STR_BOT, STR_TOP and 343. Also, *format* may be the name (minus the '.vfo' extension) of one of the video format files which reside in /usr/gfx/ucode/GR2/vof.

Entry/Starter Graphics

supports 60HZ.

XL Graphics (Indy or Indigo2)

supports supports the standard names 50HZ, 60HZ, 70HZ, 72HZ, 76HZ, NTSC, PAL, IRIS3K, STR_RECT, STR_BOT, and STR_TOP. Video format files reside in /usr/gfx/ucode/NG1/vof.

CRM Graphics

supports the standard names 50HZ, 60HZ, 72HZ, 70HZ, 75HZ, STR_RECT, STR_BOT, and STR_TOP. Also allowed is the name (minus the '.vfo' extension) of one of the video format files which reside in /usr/gfx/ucode/CRM/vof.

The following letters at the end of a format name signify:

p format is for a Flat-Panel Display.

s format is for stereo.

IMPACT Graphics

supports the standard names 50HZ, 60HZ, 72HZ, 76HZ, STR_RECT, STR_BOT, and STR_TOP. Also, *format* may be the name of one of the video format files (minus the '.vfo' extension). These files reside in the directory /usr/gfx/ucode/MGRAS/vof for **Indigo2 High Impact** and **Solid Impact** and **OCTANE SI** and **SSI** systems. (Systems with one **RE**.) The directory is /usr/gfx/ucode/MGRAS/vof/2RSS for **Indigo2 Maximum Impact** and **OCTANE MXI** systems, which have two **RE**'s.

The following letters at the end of a format name signify:

p format is for a Flat-Panel Display.

s format is for stereo.

_32db allows deep (32-bit) double-buffered visuals, but with no Z.

_pbuf allows programs to allocate pbuffers in the Z bitplanes of the framebuffer.

RealityEngine and InfiniteReality Graphics

support the standard names 60HZ 30HZ, NTSC, PAL, 343, HDTV, VGA, 72HZ, STR_RECT, STR_BOT, and STR_TOP. In addition, *format* may be the name of one of the video format files, which are named according to the convention:

<width>x<height>_<framerate>

For example, 1280x1024_60 implies a video format that is 1280 pixels wide, 1024 pixels high and runs at 60 Hz. Letters added at the end of a format name signify special options:

i for interlaced,
s for stereo,
q for field sequential,
f for framelocking, and
k for special alternate formats respectively.

For **RealityEngine**, the video format files reside in the directory /usr/gfx/ucode/RE/dg2/vof. For **InfiniteReality**, the video format files reside in /usr/gfx/ucode/KONA/dg4/vfo. Those directories contain a README file which describes the formats shipped with a release.

Infinite Reality Graphics

always operates as a multiple-channel device, and a simple video format for a single channel is insufficient to describe the operation of the entire video subsystem. Instead of simple video formats, only video format *combinations* are supported. On **Infinite Reality**, *setmon* requires a combination file - a file describing frame buffer layout and formats for all channels - as the *format* parameter. These combination files can be built with a program, ircombine(1g), that assembles an ensemble of formats. The individual formats used by ircombine(1g) reside in /usr/gfx/ucode/KONA/dg4/vfo, and are described in /usr/gfx/ucode/KONA/dg4/vfo/README.

A number of pre-built combinations can be found in the directory /usr/gfx/ucode/KONA/dg4/cmb. The names of these files are sometimes precisely descriptive of their content, but you can use ircombine(1G) to extract a full analysis of any combination. Note that if you create new combinations of your own, you must place them in /usr/gfx/ucode/KONA/dg4/cmb before they can be loaded with *setmon*.

For backward compatibility, *setmon* supports a set of pre-built combinations that contain only one format each. These combinations are named similarly to the corresponding formats on **Reality Engine**.

The **NTSC** and **PAL** video formats are actually the 525 and 625 line component RGB formats, and are not the composite video formats that these names imply.

To get composite video output from other systems, you may choose to purchase an encoder option such as the CG3 or BVO (which encodes the 525 or 625 component RGB formats into true NTSC and PAL respectively), or a video peripheral product which provides composite output from an external frame buffer.

setmon does not control the composite outputs of **RealityEngine** or **InfiniteReality**. For **RealityEngine**, the composite output is controlled by the *vout* command. For **InfiniteReality**, it is controlled by the *ircombine(1g)* command.

On systems that support custom video output formats, a user-defined format may be selected by placing the file containing the VOF into the appropriate */usr/gfx/ucode/vof* subdirectory. A given user-defined format may then be selected by specifying the file name as the *format* argument.

EXAMPLES

```
/usr/gfx/setmon -s g 30HZ
```

sets the video output format to 30 Hz, sync-on-green.

```
/usr/gfx/setmon -x 1280x1024_60
```

sets a **RealityEngine**, **InfiniteReality**, **IMPACT** or **CRM** to run 1280 x 1024 at 60Hz non-interlaced resolution the next time graphics is initialized.

```
/usr/gfx/setmon -x -s b 640x480_180q
```

sets a **RealityEngine** or **InfiniteReality** to run 640 x 480 x 180 Hz color field sequential output with sync on blue when graphics is next initialized.

```
/usr/gfx/setmon -g -s rgb vof3
```

sets the video output format to the VOF contained in the file vof3.u found in the appropriate */usr/gfx/ucode/vof* subdirectory. The format is genlocked and with sync-on-red/green/blue.

NOTES

1. Above, **IMPACT** graphics also refers to:

   IMPACTPC (Impact graphics on IP28)

   and

   IMPACTSR (Impact graphics on OCTANE).

2. Even if you use

   ```
   /usr/gfx/setmon -n
   ```

   to change the display resolution to something other than the resolution that was active when the X server was started, X will continue to manage a framebuffer area of the original size and resolution. However, if the new size set by setmon is smaller than the orignal size, then part of the framebuffer will be unviewable.

3. On **IMPACT** and **CRM**, some formats may not be loadable using

   ```
   /usr/gfx/setmon -n
   ```

   because those formats require the X server to change its notion of the screen resolution or the available visuals. To change to these formats, it is necessary to use

   ```
   /usr/gfx/setmon -x
   ```

   and restart the X server.

   In addition, the pixel depth on **RealityEngine** and **InfiniteReality** is not changed by

   ```
   /usr/gfx/setmon -n.
   ```

   To change pixel depth it is necessary to use

   ```
   /usr/gfx/setmon -x
   ```

   and restart the X server.

4. On **GR2** graphics **(Elan, Extreme, XS or XZ)**, the X server must be running before using *setmon*. On **IMPACT** graphics, *setmon* must be run with the **-x** and **-p** options if the X server is not running.

5. On systems with **GR2** graphics **(Elan, Extreme, XS or XZ)**, sync appears on the red, green, and blue signals, by default. But you can use the

   -s <r,g,b,n>

   option to specify otherwise. Sync is always on the sync pin.

6. On systems with **CRM** or **IMPACT** graphics, sync appears on the red, green and blue signals. The -s option does not affect the sync signals on these systems.

7. `/usr/gfx/setmon -g -j 10 NTSC`

   sets the video output format to NTSC, and adjusts display by 10 pixels to the left, relative to the genlock input signal.

8. `/usr/gfx/setmon -g -j -10 NTSC`

   sets the video output format to NTSC, and adjusts display by 10 pixels to the right, relative to the genlock input signal.

9. *STR_BOT* is used to turn on full-screen stereo, and signals the X server that the bottom half of the screen is to be displayed as the primary buffer. *STR_TOP* is used to turn on full-screen stereo, and signals the X server that the top half of the screen is to be displayed as the primary buffer. *STR_RECT* turns on full-screen stereo, but does not inform the X server of the fact, which gives the old full-screen stereo behavior.

10. `/usr/gfx/setmon -cs -Fv 1280x1024_50`

    With the DISPLAY environment variable or the -p option set appropriately, the "-cs" changes the **Indigo2 XL** board to a slave and the "-Fv" framelocks the slave to the sync signal coming from the backplane of the **Indigo2**. If the board is the slave by default, you don't need the -c option. Type "/usr/gfx/gfxinfo" to see the default settings.

11. `/usr/gfx/setmon -cm -Fg 1280x1024_50`

    The "-cm" sets the **Indigo2 XL** board to a master which sends a framelock sync signal to the backplane of the **Indigo2**. The "-Fg" framelocks the master to the video board which is assumed to be attached to the master board. If the board is the master by default, you don't need the -c option. Type "/usr/gfx/gfxinfo" to see the default settings.

SEE ALSO

ircombine(1g), setmonitor(3g), vout(1V)

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An experiment started in June 1993 now makes it possible to send a FAX (for free) to many different parts of the world by using internet e-mail. Any e-mail software can be used to send a text mesage, however formatted documents with fonts and pictures require a more sophisticated e-mail utility. (read our Client Software page for more information on this topic)

Before you begin, use our Check Coverage page to verify the area you wish to send a fax to is covered by the TPC Probject.

To send your fax via e-mail, start your mail software and compose a new e-mail message.

The Address Format:

```
remote-printer.recipient_name@fax_number.iddd.tpc.int
```

recipient_name

- Use the name of the recipient you wish to have on the coversheet.
- The character '_' is converted to a space
- The character '/' is converted to start a new line

fax_number

- Do not use long distance and international access codes
- Begin with country code (1=USA, 44=UK, etc)
- Strip out punctuation characters
- Maximum number of digits is 15

An example:

```
remote-
printer.Arlington_Hewes/Room_403@14959682590.iddd.tpc.int
```

This will send a fax to the number 495-968-2590 (the first '1' at in the fax number is the country code for the USA)
The coversheet will look like this:

```
Please deliver to:
Arlington Hewes
Room 403
```

The message content of the e-mail follows on separate pages of the fax transmission. An e-mail message will be sent back to you confirming the fax was sent, or information about any problems.

Another example:

```
remote-
printer.Darren_Nickerson/Room_403@441813434622.iddd.tpc.int
```

Note the use of "44" for the UK Country code. This address will send a fax to +44-1813434622, with the name "Darren Nickerson" and "Room 403" on the coverpage. If you need assistance with international country codes, this website has a complete country code list.

- **Tip:** this type of e-mail to fax will generate pages aproximatly 80 characters wide using 11 point courier font. Ascii graphics and special characters may or may not look correct when faxed. Keep your text simple.
- **Do you want more than just a text e-mail message?** Do you want to graphics, fonts, special characters, etc? Visit our Client Software page for software to help you.

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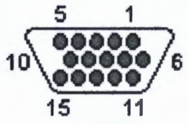
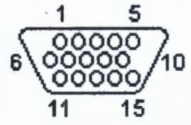
Tech Guide > VGA Pinouts

Here's a good set of figures for HD-DB-15 male and female connectors, as view the pin side (not the solder side).



HD-DB-15 Female



HD-DB-15 Male

HD-DB-15 pins commonly used for VGA monitors:

Pin	Name	Direction	Description
1	RED	PC-to-monitor	Red Video (75 ohm, 0.7 V p-p)
2	GREEN	PC-to-monitor	Green Video (75 ohm, 0.7 V p-p)
3	BLUE	PC-to-monitor	Blue Video (75 ohm, 0.7 V p-p)
4	ID2	Monitor-to-PC	Monitor ID Bit 2

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Riser Cards / Adapter Cards
SCSI
Server Racks
Software
SUN
Teflon Cabling / Products
Terminators
Tools & Tool Kits
USB
UPS Battery
Video

5	GND	N/A	Ground	
6	RGND	N/A	Red Ground	
7	GGND	N/A	Green Ground	
8	BGND	N/A	Blue Ground	
9	KEY	N/A	Key (No pin)	
10	SGND	N/A	Sync Ground	
11	ID0	Monitor-to-PC	Monitor ID Bit 0	
12	ID1 or SDA	Monitor-to-PC	Monitor ID Bit 1	
13	HSYNC or CSYNC	PC-to-monitor	Horizontal Sync (or Composite Sync)	TTL
14	~~VSYNC~~	PC-to-monitor	Vertical Sync	
15	~~ID3 or SCL~~ VSYNC	Monitor-to-PC	Monitor ID Bit 3	TTL

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